WHAT IS CLAIMED IS:

1. A fuel cell formed by stacking a plurality of plates each having reaction gas channels or heat medium channels in a fuel cell stack, wherein an inlet header for at least one side of reaction gas channels is disposed so as to face the inlet header or the outlet header for said heat medium channels.

2. A fuel cell according to Claim 1, wherein the inlet header for said reaction gas channels is maintained at the temperature of the dew point of gas or greater by the heat medium.

3. A fuel cell formed by stacking a plurality of plates each having reaction gas channels in a fuel cell stack, wherein the inlet header for one side of reaction gas channels is disposed such that it faces the inlet header for the other side of reaction gas channels.

4. A method for operating a fuel cell according to Claim 3, wherein the dew point of one side of reaction gas is set at the temperature of the other side of reaction gas or smaller.

5. A fuel cell formed by stacking a plurality of plates each having reaction gas channels or heat medium channels, wherein an inlet header for one side of reaction gas and an inlet header for the other side of reaction gas are disposed such that they face an inlet header or an outlet header for heat medium.

6. A fuel cell according to Claim 5, wherein the one side of reaction gas and the other side of reaction gas flow parallel to each other from top to bottom in the direction of gravity, and wherein both sides of reaction gas flow in direction

parallel or anti-parallel to the h at medium.

7. A fuel cell according to Claim 5 or 6, wh rein chann ls for th one side of gas, the other side of gas and the heat medium are shaped straight in the respective portions facing an anode or cathode electrode section.

8. A method for operating a fuel cell according to any one of Claims 5 to 7, wherein a following equation is established in the case when the reaction gases and the heat medium flow in the direction parallel to each other,

the dew point of at least one of the supplied reaction gases ≤ the temperature of the heat medium at the inlet,

whereas an another following equation is established in the case when the reaction gases and the heat medium flow in the direction anti-parallel to each other,

the dew point of at least one of the supplied reaction gases ≤ the temperature of the heat medium at the outlet.

9. A method for operating a fuel cell according to Claim 8, wherein a following equation is established in the case when the reaction gases and the heat medium flow in the direction parallel to each other,

the dew point for at least one side of discharged reaction gas ≥ the temperature of the heat medium at the outlet,

whereas an another equation is established in the case when at least one of the reaction gases and the heat medium flow in the direction anti-parallel to each other,

the dew point for at least one side of discharged reaction gas ≥ the temperature of the heat medium at the inl t.

10. A fuel cell according to Claim 3, wher in the heat medium is supplied so as to flow at an area facing the downstream area from the reaction gas inlet header, and wherein the heat medium heat-exchanged at an area facing the electrode section is supplied so as to flow at an area facing the reaction gas inlet header.

11. A method for operating a fuel cell according to Claim 10, wherein a following equation is established,
the dew point for at least one side of reaction gas ≥ the temperature of the heat medium at the inlet.

12. A fuel cell and a method for operating a fuel cell according to any one of Claims 1 to 11, wherein a flow resistance generation section is disposed at the inlet of at least one side of reaction gas.

13. A fuel cell and a method for operating a fuel cell according to Claim 12, wherein the reaction gas inlet header includes the flow resistance generation section.

14. A fuel cell system, wherein an oxidant humidifier and a fuel humidifier are connected to the fuel cell according to any one of Claims 1 to 13 and wherein the heat medium discharged from the fuel cell is heat-exchanged in these humidifiers.

15. A fuel cell system, wherein an oxidant humidifier and/or a fuel humidifier, and a total heat exchanger are connected to a fuel cell, and the heat medium

discharged from th fuel c ll is heat-exchanged in these humidifiers, wherein th total heat exchange is carried out b tween at least on sid of reaction gas in the reaction gas discharg d from the fuel cell and at least ne sid of reaction gas in the reaction gas before supplied to said humidifiers.

16. A fuel cell system according to Claim 15, wherein the fuel cell used in the fuel cell system and the method for operating the same are identical to the fuel cell and the fuel cell operating method defined by any one of Claims 1 to 13, respectively.

17. A fuel cell system according to any one of Claims 14 to 16, wherein the heat medium discharged from the fuel cell is first heat-exchanged in one humidifier in which either the oxidant gas or the fuel gas flows at a higher flow rate, and then heat-exchanged in the other humidifier.